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International Specialists in the Environment



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TO : Keith Schwab, FIT-DPO
FROM : Dave Franzen, E&E FIT *DF*
DATE : July 1, 1986
SUBJECT: Addendum to the Air Sampling for Richardson Flat Tailings,
Park City, Utah, TDD R8-8605-12.

This addendum has been written in response to the comments on the original sampling plan provided by Gordon MacRae and Ralph Allen in a memorandum dated June 24, 1986. A copy of the memorandum has been included in this report. A response for each of the comments is numbered according to that used in the memorandum. Each of the issues addressed in this addendum should be considered as items of the sampling plan.

As a matter of introduction, the air sampling plan for Richardson Flat was written to fulfill the requirements established by Mitre Corporation for the Hazard Ranking System (HRS) of hazardous waste sites. The requirements for defining a release via the air route are subject to interpretation; however, the Richardson Flat plan was designed to exceed the minimum criteria. The HRS requirements have been included in this addendum as Figure 1. As noted in Figure 1 and through personal communication with Mr. Channing Johnson of Mitre Corporation, a minimum air sampling plan for HRS purposes has been described as follows:

- 1) two samplers are used to collect samples at an upwind and a downwind location at the site;
- 2) the samples are collected at a reasonable distance (approximately twenty feet) from the source of contamination;

- 3) the samples are collected for one day;
- 4) disturbance of the site is not allowed during sample collection;
- 5) samples must be collected in the breathing zone (four to six feet above the ground);
- 6) samples must be taken from areas not disturbed by residents or workers;
- 7) sampling locations must be shown;
- 8) wind direction must be indicated during sampling;
- 9) the sampling procedure must be reported in detail.

In an attempt to provide a more thorough air sampling plan for Richardson Flat, additional sampling days, sampling locations, a meteorological station and an inhalable particulate sampler have been included in the sample plan. This type of sampling scheme was discussed with Mr. Johnson at Mitre and was considered to be more than satisfactory.

I. Response to comments by Gordon MacRae are as follows:

- 1) In accordance with the HRS requirements, samplers will be located twenty to thirty feet from the tailings.
- 2) As specified in the FIT SOP V-1 and the HRS manual the sampler inlet will be elevated to two meters above ground surface in the breathing zone.
- 3) No railroad contaminants are expected however any dust produced by train passage will be noted in the field logbook. The frequency of train passage will also be noted.

- 4) The potential for roadway lead contaminants from highway 40 will be accounted for by taking three soil samples perpendicular to highway 40 at 0.25 to 0.5 miles from the site. Also, RFAM04 will be moved to the northwest side of the site away from highway 40. The new sampler locations are shown in Figure 2. The potential for dust contamination from the dirt road located south of the site will be solved by locating RFAM01 0.5 miles south of the site as a distant background sampler.
- 5) Gasoline powered generators and unleaded gas will be used. The generators will be located approximately fifty feet upwind from each sampler. The anticipated direction of prevailing winds at the site is from the southeast.
- 6) The PM10 sampler will aid in HRS scoring and health effects analysis. Only one PM10 sampler is available to FIT at this time. The location of the colocated PM10 sampler will be decided in the field to collect maximum downwind contaminants.
- 7) Samples will be collected for twelve hours (7-8 A.M. to 7-8 P.M.) for five consecutive days, weather permitting. The samples will be collected on cellulose filters and analyzed for arsenic, cadmium lead and zinc content. A lower detection limit of 1.0 part per billion has been requested by Lynn Roberts, E&E chemist, in the analysis of the samples.
- 8) Five days will increase the sampling duration 5x that required for the HRS. Additional sampling days were not included due to time and monetary constraints.

II. Response to comments provided by Ralph Allen are as follows:

- 1) Wind direction data is required for HRS purposes. Temperature and barometric pressure are required to convert flow rate

to conditions at STP. The meteorological data will be representative of conditions on-site during the period of sampling. Radical changes in wind direction data will be taken into account when designating the appropriate upwind sampler location. Precipitation measurements are not needed for data calculations; however, samples will not be collected during extended periods of precipitation (i.e. 24 hours). Precipitation and changes in meteorological conditions will be noted in the field log book.

- 2) The site is located in a flat gently sloping prairie. No vegetation obstructions are anticipated based on information obtained from past site visits. Samplers will be located at least 20 meters from trees or other obstructions as specified in 40 CFR, Part 58, Appendix E and SOP IV-1.
- 3) See answer #4 in Section I.
- 4) Tailings dust is expected to blow from the site over a five day period even when precipitation occurs occasionally.
- 5) Five field blanks, one for each sampling day, and two blank filters designated "laboratory spike" will be included as part of the laboratory QA/QC procedure. All filters will be from one lot number.
- 6) Only one PM10 sampler is available to FIT in Region VIII. The PM10 sample will aid in HRS scoring and health effects analysis. Due to the fact that sample weight will not be collected, the metal concentration in the PM10 fraction and the total particulate fraction cannot be compared to one another.
- 7) RFAM01 will be moved to a location approximately 0.5 miles south of the site and will serve as a distant background

sample. Prevailing winds historically blow from the southeast. The other samplers will be located at least twenty-five meters from the dirt road to prevent excessive dust from reaching the collection filters. Twenty-five meters distance from the nearest traffic lane with greater than 3000 vehicles-per-day is required for a sampler two meters high according to 40 CFR, Part 58, Appendix E.

- 8) With RFAM01 located 0.5 miles south of the site, upslope wind conditions should not affect the sample. Wind direction data collected during sample collection will be used to determine which of the three samplers located adjacent to the site were upwind and downwind of the site during each twelve hour sampling period.

Please contact me if you have further questions or comments.

cc: Gordon Mac Rae
Ralph Allen

FIGURE 1 Requirements for HRS

The Air Route

Air measurements must be taken at reasonable distances from sources such as stocks, drum openings, well heads, leachate pool, contaminated soils.

No disturbance of the site is allowable.

Samples must be taken in the breathing zone.

OVA in survey mode is not acceptable because it detects methane.

Show that a volatilizing substance is uncontained on site and show airborne transport by upwind/downwind sampling.

Dust sample must be taken from locations unaffected by the activities of residents or workers. Upwind and downwind dust samples are preferred.

Show sampling locations with respect to the volatilizing or particulate source and indicate wind direction during sampling. Report sampling procedure in detail.

Source: Superfund National Priorities List Seminar, EPA Region VIII, Denver, CO.
The Mitre Corporation. June 12-13, 1985.

